

REMARKS

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority under 35 U.S.C. § 119(a)-(d), and for confirming that the certified copy of the priority document has been received at the Patent Office.

Drawings:

Applicant thanks the Examiner for indicating that the drawings filed with the present application have been approved.

Information Disclosure Statement:

Applicant thanks the Examiner for initialing and returning Form PTO/SB/08 A & B filed with the present application, thus indicating that the reference listed thereon has been considered.

Withdrawn Claims:

Applicant thanks the Examiner for acknowledging that claims 7 and 8 have been withdrawn without traverse.

Claim Rejections:

Claims 1-6 are all of the claims that have been examined in the present application, and currently all of these claims stand rejected.

35 U.S.C. § 102(b) Rejection - Claims 1-6:

Claims 1-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,880,763 to Tanaka et al. In view of the following discussion, Applicant respectfully traverses the above rejection.

In rejecting the present claims, the Examiner alleges that Tanaka discloses each and every feature of the claimed invention, including the claimed passage-forming substrate. In view of the following discussion, Applicant respectfully disagrees.

As an initial matter, Applicant notes that claim 1 has been amended to clarify the claimed invention.

In rejecting the claims, the Examiner alleges that the passage-forming substrate, of the claimed invention, is the spacer 6, shown in at least Figure 7 of Tanaka. In relying on Figure 7, the Examiner alleges that Tanaka discloses having the spacer 6 thicker in an interior region, than an exterior region. Although Applicant admits that this appears to be the case in Figure 7, this thickness relationship is a result of the distortion due to pressure generated during the activation of the piezoelectric elements 2. As shown in Figure 7, when the elements are activated, they deflect the plate 4, which creates pressure in the chambers 7. This pressure then deflects the nozzle plate 11 and the spacer portions 6, as shown in the Figure.

In fact, Tanaka states that:

The expanding displacements Na of the piezoelectric vibration elements 2, 2, 2 ... act as a force to deform the flow path unit 12 as a whole. However, the presence of the hollows 13 close to the bonding region between the flow path unit 12 and the head frame 5 causes the hollows 13 to flex, and this causes a region where the nozzle openings 10, 10, 10 ... are formed to uniformly flex as a whole shown in FIG. 7.

Tanaka, Col. 6, lines 34-41.

However, in the present invention, the passage-forming substrate is intentionally formed such that an interior region is thicker than an exterior region, such that the claimed thickness relationship exists when the piezoelectric elements are in a non-activated state.

This can be seen in the non-limiting, exemplary embodiment shown in at least Figures 2B and 3 of the present application. As shown in these figures, the passage-forming substrate 10 is formed such that an interior region is thicker than an exterior region, when in the non-activated state. Thus, the deflection in the present invention is intentional, and exists when the device is at rest.

This distinction becomes clear when reviewing the spacer 6, when the Tanaka device is at rest, or in a non-activated state. This is shown in Figure 3, of Tanaka. As can be seen in this Figure, the spacer 6 is formed at a constant thickness. Thus, when the elements 2 are not activated no region of the spacer 6 is any thicker than any other region.

It is for at least this reason that Applicant submits that Tanaka fails to disclose each and every feature of the claimed invention.

In view of the foregoing, Applicant submits that Tanaka fails to disclose each and every element of the claimed invention, in particular the claimed etching adjustment layer. Therefore, Tanaka fails to anticipate the claimed invention, as required under the provisions of 35 U.S.C. § 102(b). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the 35 U.S.C. § 102(b) rejection of the above claims.

Conclusion:

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 10/679,515

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Art Unit: 2853

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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